

SPRAYING.
READ BY CHARLES L. LONGSPECK
BEFORE A RECENT MEETING OF
THE FARMERS' ASSOCIATION
AT GETTYSBURG.

The agriculturist has continually to contend with two classes of organisms that injure his crops.
The first of these is the noxious insects, and the second the parasitic fungi. These two annually destroy many millions of dollars worth of produce in the United States, a large portion of which might be saved by the timely application of the various methods of prevention and remedy now known. It would seem scarcely necessary to tell the farmers of Adams county that in order to prevent the entire destruction of his fruits and vegetables by these enemies, he must resort to the use of known remedies. They are already well acquainted with the Colorado potato beetle, and the only successful means of getting rid of this pest. Yet many of them are no doubt still ignorant of the best means by which to protect other crops from the ravages of insects and fungi.

Every farmer knows that fully one half of his apples are either lost or damaged each year; he knows that his pears are often crooked and gauged; that although his plums and apricots bloom profusely, he knows that they are often lost to him; that his cherries are often lost to him; that his quinces and grapes rot badly; that often his potatoes "blight," and he loses his entire crop, but how shall he prevent this destructive loss? That is the question which concerns him most just now.

It is my purpose to briefly as possible in this short article, to give some hints in this direction, which, if followed, will prove a benefit to all who care to profit by them. In the first place, I will state that spraying is rather a preventive than a cure; so that it is necessary to begin early and keep it up at stated intervals during the most of the summer, if one would reap the greatest benefit. It will not do to wait until the little moth has done all the damage she can by depositing a tiny egg in the blossom end of the apple, and then spray; nor will it do to wait until the fungus spores have developed into a genuine mildew or "black rot," and then spray. We must destroy the insects, and the fungus spores before they have begun their siege of destruction.

Insects take their food in two ways: some bite, others suck. The former, of which the potato beetle, caterpillar and cucumber beetle are examples, are provided with jaws by which they can gnaw the surface of the food plants. The latter have, instead, a pointed, tube-like beak which they can insert into the tissue of the host-plant, and suck the sap.

On account of the difference in feeding habits some insects can be destroyed by coating their food-plants with poison, while others, like the plant hoppers and aphids, must be treated with some insecticide that kills by contact.

For the destruction of the first named class of insects, those that eat, we use Paris Green, London Purple, and Lead Arsenate, for the latter class, those that suck the sap, we use tobacco, heliothene, pyrethrum or coal oil emulsion.

The codling moth is the most destructive insect with which the apple grower has to contend. They are on the wing early in the season, and just as soon as the apple is formed they begin to busy themselves during the day. One of these little moths will deposit as many as one hundred eggs in its many apertures in the course of four or five days, developing into a worm, which immediately begins to eat their way through the center of the apple. In the course of four or five weeks they reach maturity and escape from the apple, when they secrete themselves in cracks of crotches, or under the loose bark of the tree where they spin their cocoon, in which they pass through several stages of development and come out at the end of a fortnight perfect moths, and repeat during the month of July, the same operation which I have already described.

The plum curculio operates much in the same manner as the codling moth, except that it works only during the day, and the larva enters the ground from two to four inches, where it remains until the pupa stage and comes forth through its pupal case and comes forth through its pupal case and comes forth through its pupal case.

Besides the insects already mentioned there are many others that do much damage to both fruit and foliage. The most important among them is the apple tree borer. The adult beetle of this pest, which is a small, round, brown beetle, is found in the bark of the apple tree, and the larva enters the ground from two to four inches, where it remains until the pupa stage and comes forth through its pupal case and comes forth through its pupal case.

HEALTHY CONSUMPTION.
Indicated by the leaf-eating worms. In the use of these arsenites care must be taken or injury will be done to the foliage, as too much poison will burn the leaves and prove more destructive than the insect we desire to destroy. For this reason experienced sprayers advise the use of Paris Green instead of London Purple. The former is a chemical combination of arsenic and copper, always containing fifty-live per cent. of arsenic, while the latter is a by-product or refuse, obtained in the manufacture of aniline dyes, and generally, though not always contains about the same percentage of arsenic as Paris Green, which, however, is in a more soluble form, and consequently is more liable to injure the foliage. It is a finer powder than Paris Green, and hence remains in suspension in water a greater length of time. It is also cheaper. For these reasons its use is often recommended instead of the former.

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